

A Fully Non-Metallic Gas Turbine Engine Enabled by Additive Manufacturing

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A comprehensive evaluation of emerging materials and manufacturing technologies for high temperature composite materials was conducted. The feasibility of using additive manufacturing technologies to fabricate polymer matrix composite and ceramic matrix composite gas turbine engine components was evaluated by building and testing these materials and components. The Technology Readiness Level of Additive Manufacturing technologies for fabricating turbine engine components using these materials was determined. System studies were conducted to determine the potential benefits of using these materials and fabrication methods in terms of reduced aircraft fuel burn and emissions.